U.S. Department of Energy
Office of River Protection
P.O. Box 450
Richland, Washington 99352

0060012

JUL 30 2003

03-ED-122

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State of Washington
Department of Ecology
1315 W. Fourth Avenue
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Mr. Nicholas Ceto
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Dear Addressees:

HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (HFFACO) INTERIM MILESTONE M-62-01, "SEMI-ANNUAL COMPLIANCE REPORT FOR THE WASTE TREATMENT AND IMMOBILIZATION PLANT," FOR JANUARY 2003 THROUGH JUNE 2003

This letter transmits the U.S. Department of Energy (DOE), Office of River Protection Semi-Annual Compliance Report required by interim Milestone M-62-01 for the period from January 2003 through June 2003. This report provides the following information:

- A concise description of project accomplishments and issues including those encountered during the previous year and those expected in the near term (Section 3);
- When applicable, a description of any actions initiated or otherwise taken to recover any agreement schedule slippage (Section 4);
- A budget and cost schedule which is included in the attachment, with a brief narrative (Section 5); and
- A statement documenting whether or not DOE and DOE's contractors have performed sufficient work to assure with reasonable certainty that DOE will accomplish series M-62 major and interim milestone requirements. This information is provided for each milestone where appropriate (Section 8).

All M-62-00 Critical Path Milestones occurring during the period covered by this report have been met.

If you have any questions, please contact Mark Ramsay, Office of Assistant Manager for Waste Treatment and Immobilization Plant, (509) 376-7924 or me (509) 376-2247.

Sincerely,

James E. Rasmussen, Director
Environmental Division

ED:JER

Attachment

cc w/o attach:
F. Beranek, BNI
B. Erlandson, BNI
J. Su-Coker, BNI
B. Curn, BNI
PDC, BNI
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J. J. Luke, CHG
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J. Cox, CTUIR
B. Becker-Khaleel, Ecology
S. L. Dahl, Ecology
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J. J. Martell, WDOH Richland Office
R. Jim, YN
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Administrative Record
Environmental Portal, LMSI
WDOH Kennewick Office

Attachment
03-ED-122

Hanford Federal Facility Agreement and Consent Order Interim Milestone M-62-01, "Semi-Annual Compliance Report for the Waste Treatment and Immobilization Plant," for February 2003 through July 2003

OFFICE OF RIVER PROTECTION
SEMI-ANNUAL PROJECT COMPLIANCE REPORT
FOR THE WASTE TREATMENT AND IMMOBILIZATION PLANT
January 1, 2003 – June 30, 2003

U.S. DEPARTMENT OF ENERGY
OFFICE OF RIVER PROTECTION
2440 Stevens Center Place
Richland Washington 99352

June 30, 2003

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RIVER PROTECTION PROJECT – WASTE TREATMENT AND IMMOBILIZATION PLANT SEMI-ANNUAL COMPLIANCE REPORT

U.S. DEPARTMENT OF ENERGY (DOE), OFFICE OF RIVER PROTECTION (ORP) RIVER PROTECTION PROJECT (RPP) – WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) SEMI-ANNUAL COMPLIANCE REPORT

1. INTRODUCTION M-62-01G – RPP – WTP PROJECT COMPLIANCE REPORT

As required by the Hanford Federal Facility Agreement and Consent Order (HFFACO) Milestone M-62-01G, this Semi-Annual Project Compliance Report reflects issues, activities, and accomplishments for the ORP WTP project occurring during the reporting period of January 1, 2003, through June 30, 2003. As detailed in M-62-01, this report documents ORP's compliance with HFFACO Milestone M-62-00 series requirements, and provides information regarding issues, activities, and progress relative to those milestones. The report includes information pertaining to activities expected in the foreseeable future as defined and required by M-62-01.

2. WTP COMPLEX DESCRIPTION

Hanford Site Background: Hanford tank waste consists of approximately 190 million curies in 54 million gallons of highly radioactive and mixed hazardous waste stored in underground storage tanks at the Hanford Site. The tank waste includes solids (sludge), liquids (supernatant), and salt cake (dried salts that will dissolve in water, forming supernatant). The tank waste will be remediated through treatment and immobilization to protect the environment and meet regulatory requirements.

DOE determined through the "Tank Waste Remediation System Environmental Impact Statement Record of Decision," that the preferred alternative to remediate the Hanford tank waste is to:

- pretreat the waste to prepare it for processing and vitrification;
- immobilize the Low-Activity Waste (LAW) for onsite disposal; and
- immobilize the High-Level Waste (HLW) for ultimate disposal in the national repository.

WTP Complex Description: The RPP – WTP is a new treatment and storage complex being designed, constructed, and commissioned by Bechtel National, Inc. (BNI) as defined by specifications and requirements listed in DOE Contract No. DE-AC27-01RV14136,[1] Section C. The WTP will be designed, constructed, and permitted to store and treat radioactively contaminated dangerous waste, called mixed waste, at the Hanford Site in Richland, Washington.

The WTP will receive waste from Hanford's Double-Shell Tank system unit, operated by CH2M HILL Hanford Group, Inc. in batches that are composed of either LAW or HLW feed. The LAW and HLW feed will be transferred by pipeline to the WTP for pretreatment and vitrification. The vitrification process will combine the pretreated tank waste with glass-forming materials and melt the mixture into a liquid that is poured into stainless steel containers. The hot glass cools and hardens and each container will be closed in preparation for storage and permanent disposal. The dangerous waste and radioactive constituents will be destroyed, removed, or immobilized in this durable glass matrix through the vitrification process.

[1] Contract No. DE-AC27-01RV14136 between the U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

3. PROJECT ACCOMPLISHMENTS AND ISSUES

A. PROGRESS TO DATE

i. ORP – Project Management

During the past several months, ORP has focused management attention on the following: Critical Decision (CD) 3c – This decision, like 3a and 3b previously, is for construction authorization and must be obtained from DOE Headquarters in accordance with DOE orders. External Independent Reviews (EIR) are required for the decisions and generally involve large efforts for preparation and planning. Originally, CD-3c was scheduled for authorization in the September/October 2002 time frame. CD-3c was authorized in April 2003.

Completion of "2+2" Project Strategy – DOE and BNI are currently in process of implementing the accelerated cleanup strategy for the WTP consistent with the Hanford Performance Management Plan for the Accelerated Cleanup of the Hanford Site. This strategy involves adding a second melter to the HLW facility and deleting one of the three melters in the LAW facility. This strategy has been fully implemented in project planning.

Oversight and Management of Trends - DOE has focused attention on review and disposition of WTP scope, cost, and schedule trends in efforts to reduce or limit project cost growth to a level consistent with "minimum essential" project planning and development. These trends have been approved.

- Elimination of the Technetium Separations system in the Pretreatment (PT) Facility, resulting in $28M savings;
- Elimination of the Administration Building and the Melter Assembly Building, resulting in $10M savings; and
- Evaluations are also underway for the elimination of the Central Waste Storage Facility, Failed Melter Storage Facility, Spent Melter Facility, and the Encapsulation Facility. Eliminating these facilities has a potential savings of more that $9M.

HFFACO Milestone Developments – DOE entered into negotiations with Ecology and agreed upon an interim set of M-62 Milestones. HFFACO Milestone M-62-07A, "Initial Erection of Structural Steel in the LAW Facility," was completed two months early on July 24, 2003. The scheduled completion date was September 30, 2003..

ii. BNI – WTP Complex Design and Construction

Design and construction activities are well underway for the LAW Vitrification, HLW Vitrification, and the PT Facility, in addition to a number of WTP support facilities.

From project inception, WTP employees have worked in excess of 10 million hours with one lost-time accident and 33 recordable injuries (including the lost-time accident). BNI recently conducted a detailed evaluation of its safety performance. The analysis revealed the WTP Occupational Safety and Health Administration recordable rates are considerably lower than the 2002 DOE complex wide reported figures, and other comparable construction projects.

A summary of BNI performance against contract deliverables is included in Table 3B-1, "WTP Progress Against Contract Deliverables," provided below:

Table 1: WTP Progress Against Contract & HFFACO Milestone through June 30, 2003

Contract Milestone Description	**Contract Schedule Date**	**Actual/Estimated Date**
Start of Construction (M1)	Jul-02	Jul-02 A
Set Feed Receipt Tanks in PT Facility (M2)	Mar-05	Mar-05
Move HLW Melter #1 into Bldg (M3)	Dec-07	Jun-07
Completion of Hot Commissioning (M5)	Jan-11	Jan-11
Completion of Contract Requirements (M6)	Jul-11	Jul-11
TPA Milestone Description	**Compliance Date**	**Actual/Estimated Date**
Start of Construction (M-62-06)	Dec 02	Jul-02 A
Initial LAW Structural Steel (M-62-07A)	Oct-03	Jul-03
Complete Assy LAW Melter #1 (M-62-07B)	Note 1	
Start of Hot Commissioning (M-62-09)	Note 2	
Completion of Hot Commissioning (M-62-10)	Jan-11	Jan-11

Note 1. Combined with Contract Milestone M3
Note 2. Redefined as "Start of Cold Commissioning" with due date of February 2009

During the past several months, BNI has focused management attention on the following:

The 2003 Project Forecast was completed and reviewed by the EIR team in March 2003. On April 25, 2003, the Secretary of Energy approved the cost and schedule baseline and the CD-3c (Critical Decision-3c) allowing for full construction authorization. This topic is discussed in more detail in Section 4 of this report.

Performance Measurement Baseline - The project is in the process of implementing the 2003 Performance Measurement Baseline. It is planned for submittal to DOE in July 2003.

HLW Vitrification Facility Height is being raised seven feet from the original design, thus relieving congestion within the facility, accommodating equipment installation and improving constructability, operability, and safety. The changes also include structural changes that improved the facility's original design by reducing seismic loads.

Melter Bubblers - A critical LAW risk was addressed by demonstrating successful performance life of new melter bubblers which exceeded design life. A revised Research & Technology Bubbler Plan was completed and delivered to DOE in March 2003.

Glass Former Dusting - Laboratory and bench scale glass former dusting tests were successfully completed at the Savannah River Technology Center (SRTC). Test results based on percentage by weight of water indicate virtual elimination of dusting for LAW and HLW glass former feedstock.

Significant progress was also made on technical issues associated with Ion Exchange and Pulse-Jet Mixer which is discussed in more detail in Section C.

Facility Construction Progress:

Pretreatment Facility: Completed six-foot thick concrete foundation, commenced installation of stainless steel floor drain piping, and received first collection tanks and started fabrication of four receipt tanks.

LAW Facility: Completed five-foot thick concrete foundation, completed walls-to-grade, and completed all below-grade exterior walls.

HLW Facility: Completed six-foot thick concrete foundation, continuing walls-to-grade concrete placements, installing basemat shield doors, and installing heating and ventilation duct work.

Balance of Facility (BOF): Completed construction main office building, warehouse, workshop, and installation of rigid electrical conduit for the electrical switchgear building.

Laboratory Facility: No construction as yet; conceptual stage of design.

Commodities Installations: Under the construction activities summarized above, the following commodities have been placed or installed as of June 2003:

Table 2: Key Quantity Progress To Date

Quantity Progress	To-Date	At Completion
Earthwork	1,035,000 cu. yds.	2,2000,000 cu. yds.
Concrete	50,600 cu. yds.	252,000 cu. yds.
Piping	80,000 feet	843,000 feet
Electrical Raceway	82,600 feet	1,670,000 feet
Heating Ventilation and Air Conditioning (HVAC) Ductwork	72,500 lbs.	4,500,000 lbs.

WTP Project Completion: The WTP is approximately 21 percent complete. Engineering is estimated at 49 percent complete and construction progress is 13 percent complete.

iii. Environmental Permits Required for Start of Construction:

Permitting and Licensing: BNI continues to work closely with state and Federal regulatory agencies to obtain required permits, licenses, and authorizations needed to support WTP construction activities. Initial permits were granted to support start of full construction activities by December 31, 2002; activities are now underway to review these permits for potential modifications required to support the WTP 2+2 design change. A status of the various permits is provided in the table below:

Table 3: Environmental Permits Required for Start of Construction

Permit	Type	Regulatory Authority	Description/Status
Radioactive Air Emission Notice of Construction (NOC) for excavation at WTP	Radioactive air emissions	State of Washington Department of Health (WDOH)	**Complete** - Permit provided a mechanism to continue excavation if radioactive contamination was encountered during limited construction activities.
Concrete Batch Plant NOC	Criteria air pollutants (particulate matter)	State of Washington Department of Ecology (Ecology)	**Complete** - Permit was required for construction of the concrete batch plant during the limited construction phase and operation throughout the life of the project.
Radioactive Air Emissions NOC and National Emission Standards for Hazardous Air Pollutants (NESHAPs) approvals	Radioactive Air Emissions	WDOH and U.S. Environmental Protection Agency (EPA)	Radioactive air emission approvals are required from both EPA and WDOH prior to start of construction. The status for the approvals is as follows: ▪ NESHAPs approval: **(Complete).** Approval was granted by the EPA on May 29, 2003 ▪ Radioactive Air Emissions NOC: The State approval has been divided into two phases. Phase I has been issued and allows limited construction (beyond floors and walls to grade). Phase II is in the final stages of being developed and issued, and will cover the balance of construction. The draft Phase II Radioactive Air Emissions License is scheduled to be issued for public review by the WDOH July 31, 2003. ▪ A Radioactive Air Emissions, Phase III License will likely be developed to cover plant ops.
Prevention of Significant Deterioration (PSD) Permit	Criteria Air pollutants (Only NOx exceeds PSD significance level)	Ecology	Modifications Pending - The PSD Permit to support start of construction was issued July 8, 2002. Permit governs nitrogen oxide emissions from WTP. The revised PSD permit application to support the 2+2 design change was resubmitted to Ecology June 27, 2003, and is currently undergoing review by the agency.
Non-Radioactive Air Emission NOC	Toxic air pollutants	Ecology	Modifications Pending - The Non-Radioactive Air Emission Permit was issued July 8, 2002. Permit governs

			toxic and criteria pollutant emissions from WTP. The revised Non-Radioactive Air Emission NOC application is being developed to support the 2+2 design change; this modification is scheduled to be submitted to Ecology July 25, 2003.
Resource Conservation and Recovery Act (RCRA)/Dangerous Waste Permit	Hazardous waste management	Ecology	Modifications Pending -The Temporary Authorization to Construct was issued July 1, 2002. Final permit was issued September 25, 2002. Subsequent approvals are required and are being pursued in accordance with permit conditions and compliance schedule.
Hanford Site Discharge Permits 4508, 09, and 10.	Discharge Permits	Ecology	Complete - Hanford Site permits support hydrotest and maintenance, cooling water and storm water discharges.
Discharge Permit ST 9240	Discharge Permit	Ecology	Complete - WTP permit supports large volume discharges in excess of existing site permit limits.
Sand and gravel permit – 5180	Discharge Permit	Ecology	Complete - discharge permit for concrete batch plant
Sand and gravel permit – 5181	Discharge Permit	Ecology	Complete - discharge permit for gravel operations
On-Site Sewage Treatment Plant	Sanitary sewer	WDOH	Complete - WDOH has indicated all required engineering and operations documentation has been submitted. WDOH has approved occupancy and issued permit.

B. CURRENT PROJECT ACTIVITIES

i. Pretreatment

Engineering continues to conduct model reviews in preparation for scheduled model freezes, which enable release of wall civil drawings to the field. The next release of civil drawings to construction is scheduled for mid-July 2003. Piping and Instrumentation Diagrams (P&ID) continue to be completed ahead of schedule.

The Plant Design team is executing to a schedule which details all construction wall placements and the necessary reviews and freezes. Piping freezes are also being targeted. The first release of piping isometrics is scheduled for late August 2003. However, the initial release of the 42 isometric packages are in progress and will be issued for fabrication in mid-July 2003. Other isometric packages are also in progress and being targeted for release to fabricators early August 2003. It is anticipated that the momentum experienced in these early releases will be maintained.

Construction has now completed greater than 60 percent of the basemat for the PT Facility, which includes all areas east of the process vessel pit. Work is on schedule for completing two related key milestones:

- Completion of below grade concrete placements (forecasted for July 10, 2003)
- Completion of main basemat pours (forecasted for September 30, 2003)

Preparatory work continues on the first PT above-grade concrete wall placements, which are scheduled to be placed mid-July 2003. Rebar has been installed and form work began in late June 2003.

Two major vessel deliveries were successfully completed this period (June 16, 2003). Shipment of the process pit vessels was the first to the WTP site via the Columbia River, and was featured in local media/press reports. Following unloading, the vessel support rings were installed into the process vessel Pit as scheduled (June 30, 2003). The vessels are now in storage and ready for installation, which is scheduled for October 2003.

Additionally, the stairs and platforms for the fire water pit arrived this period completing delivery of miscellaneous steelwork and structures for this area. Installation of the firewater pit steel and stairs is forecast for mid-July 2003.

Permitting: Two Dangerous Waste Permit Application (DWPA) packages (041 and 074) were delivered to the DOE for formal transmission to Ecology. Approval is expected in late September 2003 in advance of the construction need date.

ii. LAW

Interior wall placements are progressing to support the early start of structural steel installation in July 2003 to complete the HFFACO milestone for the first placement of the structural steel.

Engineering releases continue ahead of schedule. Phases 1 and 2 elevation three foot slab drawings were issued ahead of schedule which allowed advance procurement of penetrations and embedded steel. Remaining Phases 3 and 4 drawings for elevation three foot are expected to be issued mid-July 2003. Melter system design is forecasted to be complete by August 15, 2003. HVAC vendor drawing reviews are proceeding well and duct fabrication is projected to commence mid-July 2003.

Preliminary tests for the revised design of the high efficiency particulate air (HEPA) filter housings are within specifications. Testing of the HEPA filter housings is in progress to support installation at elevation –21foot. Vendor work continues on HVAC fan and motor fabrication. The C-5 fans have passed pressure testing. The remaining testing (with motors) is scheduled to support delivery of the fans early in August 2003.

The project is monitoring the rate of piping isometric generation and implementing changes to increase isometric output. Several major engineering improvements also being analyzed are:

- use of a mechanical seal for the glass canisters;
- replacement of the melter wet bus with a dry bus;
- reductions in the melter power supply system;
- improved melter standby cooling system design; and
- modification to the off-gas ammonia addition capability.

These improvements are in the final stages of the review/approval process and appear to promise overall capital cost savings, reduced life cycle costs, and improved system reliability.

Acquisition Services is focused on equipment deliveries of the initial major equipment and tanks required to meet the optimum construction strategy. Delivery of the C3/C5 vessel was delayed to resolve vendor deficiencies which have been resolved. Delivery of the HVAC C5 fans and HEPA filter housings is forecasted for early and mid-August 2003 respectively. Coaxial pipe contracts were awarded and spool deliveries are being tracked closely to support installation of embedded coaxial pipe.

Permitting: The DWPA compliance package to allow C3/C5 vessel and bulge placement is complete. A revised DWPA is being submitted for process piping installation for some of the process piping at the elevation –21foot. The compliance packages to approve concrete placement for the elevation three foot slab were submitted on June 25, 2003, to Ecology. Approval is anticipated in early August 2003.

iii. HLW

During the period the HLW Area team gained WTP management approval of the facility assessment option to raise the building height seven feet. The HLW Area team completed the layout of the Off-Gas equipment and associated piping. Civil/Structural operations continued to concentrate their efforts and resources in the area of seismic reanalysis and releasing walls-to-grade for construction. They also participated in the Defense Nuclear Facility Safety Board (DNFSB), WTP Safety Regulation Division, and ORP Peer Review team reviews regarding the seismic reanalysis, load path analysis, and concrete subsidence. The team is executing to a detailed plan that provides interim releases to Construction while the reanalysis is being performed. Concurrent with this effort is the need to submit an Authorization Basis Amendment Request (ABAR) addressing structural design basis changes prior to the finalization of the seismic reanalysis.

Recent Engineering accomplishments:

- Issued for construction (IFC) HVAC calculations volumetric and instrumentation diagrams elevation 0 foot;
- Issued Cable Tray Plan (elevation –21foot);
- Issued Motor Control Center (MCC) single line diagrams;
- Issued process jumper fabrication specification; and
- Issued 17 piping and instrumentation diagrams including Sodium Hydroxide Reagent system and adding Melter #2.

Thickened slab placement of 660 cubic yards and a wall placement of 100 cubic yards was completed. Progress continued in the installation of embeds, wall rebar, and concrete preparation activities on a number of other walls and thickened slabs.

Permitting: The submerged bed scrubber condensate receiver vessel installation (0903) Dangerous Waste Permit (HLW002) was submitted during this period. Also, the gamma interlocks ABAR for the personnel access shield doors was completed this period.

Research and Technology: Laboratory and bench scale glass former dusting tests were successfully completed at SRTC. The tests were conducted to evaluate the addition of water and

other wetting agents to HLW and LAW glass former blends to mitigate dusting that occurs as a result of handling/delivering glass former chemicals.

iv. Balance of Facilities

Engineering issued for construction the following key deliverables:

- Phase 3 Cathodic Protection (4 drawings);
- Raw Water (RAW) system (10 drawings);
- Plant Service Air (7 drawings);
- Process Water Systems (18 drawings);
- Diesel Fuel System plans and profiles (4 drawings);
- 13.8kV and 4.16kV single line diagrams; and
- Important to Safety (ITS) Electrical Duct Bank and manholes (9 drawings).

Post award Design/Build subcontract activities include:

- Review and approval of 60 percent-design package for the Chiller Compressor building;
- Review and approval of 60 percent-design package for the Simulator building; and
- Review and approval of 100 percent design package for the Switchgear Building.

Construction completed excavation for the Non-radioactive Liquid Waste Disposal (NLD) tank foundation, installation of footings for BOF Switchgear Building 91, and structural backfill for water tank foundations. Fifty percent of the mass backfill for the LAW facility has been completed.

Construction also initiated activities for the following:

- Stockpiling of backfill material from the Environmental Restoration Disposal Facility;
- Excavation of fire water tank foundations;
- Placement of structural backfill for NLD pump house;
- Excavation for BOF Switchgear Building 91 foundations; and

In addition, construction activities continued for excavation, installation, and backfill for underground utilities.

Acquisition Services awarded the ductile iron butterfly valve, the switchgear equipment, and the chiller package purchase orders. In addition, all the polyvinyl chloride (PVC) pipe for the underground NLD system (both discharge and balance) and RAW system has been delivered.

v. Analytical Laboratory

Engineering release of deliverables continues ahead of schedule. Deliverables issued ahead of the schedule included:

- Datasheets for HVAC fans, filters and air handling units, (Revision A);
- Seismic analysis, (Revision A); and
- Analytical facility (LAB) C2 floor drain sizing calculation, (Revision A).

The LAB schedule status is projected to continue being positive. Engineering progress looks favorable in the upcoming month.

Near term critical path activities are progressing satisfactorily. The focus is on front end engineering activities that include:

- P&IDs - (mechanical systems);
- Seismic and structural analyses - (civil/structural);
- Piping model design for all planning areas - (plant design);
- Design calculations/Stage D volumetric and instrumentation diagrams - (HVAC); and
- Design specifications/design proposal drawings - (mechanical handling).

Acquisition Services continues to issue material requisitions and meet with vendors.

The LAB team completed an as low as reasonably achievable (ALARA) design review for elimination of the intra-lab portion of the auto-sampler system.

ORP has concurred with WTP recommendation to continue current design approach for the LAB. ORP is also chartering an external review of LAB design for July 2003.

C. ISSUES THIS PERIOD

i. ORP – Project Management

There were no ORP project management issues identified this period affecting HFFACO compliance.

ii. BNI – WTP Complex Design and Construction

Issue: Contract Negotiations.

Description: Align Section C, "Statement of Work," with current technical scope and Minimum Essential philosophy and finalize negotiations on revised fee incentives.

Corrective Action: Contract negotiations were fully executed on April 25, 2003; Modification A029.

Issue Closed.

Issue: Approval from DOE of CD-3c to proceed with full construction of the WTP.

Description: Prior to CD-3c approval on April 15, 2003, the DOE has required that the WTP Project demonstrate a schedule that can be executed within contract funding limits.

Corrective Action: BNI commissioned an independent schedule assessment team consisting of corporate and project personnel to review and rebuild the project schedule. An updated 2003 Project Forecast was submitted to ORP on March 7, 2003. The Forecast was the basis for the DOE EIR during the week of March 17, 2003. The result of the EIR was positive, recommending baseline approval and full construction authorization. On March 28, 2003, the Energy Systems Acquisition Advisory Board (ESAAB) recommended to the Secretary of Energy, approval of the cost and schedule baselines, and CD-3c approval allowing for full construction authorization. On April 25, 2003, the Secretary of Energy approved the cost and schedule baseline and CD-3c allowing for full construction authorization.

Issue Closed.

Issue: Uniform Building Code (UBC) equivalency.

Description: The 2000 International Building Code (IBC) is more appropriate and should be used in place of the 1997 UBC for non-structural applications in determining occupancy and construction types for LAW, HLW, PT, and the LAB.

Corrective Action: Approve Authorization Basis Change Notice (ABCN) 24590-WTP-ABCN-ESH-02-033; Application of IBC 2000 for Determination of Classification of Construction Type for the WTP Process Facilities and Analytical Laboratory, to replace non-structural portions of the UBC with corresponding Chapters of the IBC in the Safety and Requirements Documents (SRD). A technical briefing by an IBC committee member was conducted with DOE Headquarters technical staff on February 20, 2003.

Issue Closed.

Issue: Compliance with design process requirements.

Description: Between April and July 2002, a quality assurance surveillance and a project review initiated by BNI technical experts of engineering calculation records disclosed a number of procedure compliance problems. Several Corrective Actions Reporting System (CARS) were written. Additionally, in December 2002, incorrect calculations for HLW embeds were discovered during BNI's chief engineer's review.

Action Plan: Several actions were taken to address the issues:

- Providing an improved checklist with clear definition of the management expectations for calculations. Examples of acceptable calculations will be provided to each discipline;
- Re-sequencing the second checker function to occur after the approval and have it be independent to more closely monitor the calculation production process; and
- Continue to monitor the calculation process with associated metrics.

Although focused attention to calculation quality is still required, substantial improvement has been achieved.

Issue: Mixing analysis for high-solid content vessels.

Description: Results of computational fluid dynamics (CFD) mixing analysis of the current pulse jet mixer design configuration for HLW Lag Storage and Feed Blending Process vessels indicate possible difficulty in maintaining homogeneity of non-Newtonian fluids. This raises concerns for effective implementation of hydrogen mitigation strategies. As a result, a design hold has been imposed on the vessel supplier.

Action Plan: A testing program to resolve this problem has been defined by Engineering and Research and Technology. BNI is proceeding with the testing program and plan to release holds on vessel fabrication by mid-December 2003. This will not impact required vessel required onsite dates. The Action Plan outlining the approach to resolve the non-Newtonian slurry vessel mixing and hydrogen issue resolution to the WTP has been issued. A vendor capable of fabricating acrylic test vessels for the Concentrate Receipt Vessel, Ultra Filtration Process, and Blend vessel scale models within the project schedule constraints has been identified. Preliminary vessel scales have been selected, contingent on confirmation of their

availability from the vendor. This work is expected to be completed by the end of November 2003.

Issue: Cesium ion exchange resin.

Description: Cesium ion exchange resin testing results indicate higher than anticipated column pressure drop. Subsequent testing will address the compressibility of the resin and the ability of the resin to expand under a variety of bed configurations.

Action Plan: An expert panel was convened to overview the significant issues and progress associated with Cesium Ion Exchange resin performance. The panel endorsed the testing and engineering path forward toward closure of the resin chemical and radiolytic stability issue. A plan to verify the hydraulic pressure drop in the ion exchange column incorporating the recommendations from the panel has been prepared. Resin feed preparation and the laboratory work that supports this verification test is now underway. The verification test is expected to be completed by the end of October 2003.

4. ACTIONS TAKEN OR INITIATED TO RECOVER ANY SCHEDULE SLIPPAGE

WTP management commissioned a Schedule Analysis Project consisting of "off project" and "on project" personnel to be strictly dedicated to a review and rebuild of the project schedule. Six Sigma tools were incorporated to flowchart key design deliverables. As a result of their efforts, a Level III schedule, key resource staffing profiles, as well as a series of design release curves and installation curves were used to develop the updated 2003 Project Forecast. The 2003 Project Forecast was the basis for the EIR during the week of March 17, 2003.

The results of the EIR were positive, recommending baseline approval and full construction authorization to the ESAAB. On April 25, 2003, the Secretary of Energy approved the cost and schedule baseline and CD-3c allowing for full construction authorization.

Once the baseline was approved, BNI rapidly began developing the Performance Measurement Baseline which integrated the 2003 Forecast schedule into the project management tools. The Performance Measurement Baseline is expected to be submitted to DOE in July 2003.

5. BUDGET AND COST STATUS

The BNI costs for Fiscal Year (FY) 2004 funding are unresolved and ORP is working with Congress, DOE Headquarters, regulators, and other stakeholders to ensure appropriate funding for the project.

6. DOE/DOE CONTRACTOR COMPLIANCE

ORP and BNI are currently in compliance with ongoing HFFACO milestones. However, ORP has recently renegotiated the M-62 Milestone series with the regulators. The pending milestone changes are indicated below in Section 8.

7. AREAS OF NON-COMPLIANCE

There are currently no areas of non-compliance.

8. STATUS OF HFFACO MILESTONES

Ecology, EPA, and DOE have concluded negotiations of Change Requests to the M-62 milestone series. Upon approval, these changes will bring the contract to construct the Hanford WTP and the HFFACO into alignment. These change requests will also accelerate DOE's current HFFACO

commitment to develop more definite plans for completing treatment of all Hanford Tank Waste by 2028.

Approval by the abovementioned parties is subject to public comment and appropriate change requests modifications, if any. Change request finalization is anticipated by November 1, 2003. The changes to the M-62 Milestone series are reflected as follows:

A. M-62-00 – Complete Pretreatment Processing and Vitrification of Hanford High Level and Low Activity Tank Wastes
Milestone Date: December 31, 2028
Description: Compliance with the work schedules set forth in this M-62 series is defined as the performance of sufficient work to assure with reasonable certainty that DOE will accomplish series M-62 major and interim milestone requirements.

DOE internal work schedules (e.g., DOE approved schedule baselines) and associated work directives and authorizations shall be consistent with the requirements of this agreement. Modification of DOE contractor baseline(s) and issuance of associated DOE work directives and/or authorizations that are not consistent with agreement requirements shall not be finalized prior to approval of an agreement change request submitted pursuant to agreement action plan section 12.0.
Status: On Schedule

B. M-62-00A – Complete WTP Pretreatment, Processing and Vitrification of Hanford High Level and LAW ~~Phase I~~ Tank Wastes
Milestone Date: February 28, 2018
Description: ~~Phase I~~ tank waste processing shall complete the WTP pretreatment and vitrification of no less than 10 percent of Hanford's tank waste by mass* and 25 percent by activity.

*[In meeting this requirement DOE will pretreat and vitrify no less than 6000 metric tons of sodium (in the instance of LAW feed) and 800 metric tons of waste oxides (in the instance of HLW feed)]
Status: On Schedule

C. M-62-01 – Submit Semi-Annual Project Compliance Report
Milestone Date: Semi-Annual Beginning July 31, 2000
Description: DOE's manager, ORP, will submit a "Project Compliance Report" to Ecology semi-annually (a copy of this report will also be provided to EPA's Region 10 Office of Waste and Chemicals Management). This report will document DOE compliance with agreement requirements and shall be sequentially updated by information documenting work performed and issues encountered during the previous report period. The ORP project compliance report will be provided as part of the parties' Interagency Management Integration Team meetings, and shall document the status of progress to date, progress made during the report period, and activities expected in the foreseeable future. The report will include, but is not limited to: (1) a concise description of project accomplishments and issues including those encountered during the previous year and those expected in the near term, (2) when applicable, a description of actions initiated or otherwise taken to recover any agreement schedule slippage, (3) a budget and cost status, (4) a statement documenting whether or not DOE and DOE's contractor(s) remain in compliance with agreement requirements, i.e., whether or not "DOE and DOE's contractor(s) have completed sufficient work to allow achievement of agreement requirements," and (5)

concise descriptions of any noncompliance. Copies of all pertinent DOE work directives and/or authorizations issued to DOE's contractor(s) shall be provided on request.
Status: Ongoing and On Schedule. Note: The M-62-01 milestone reoccurs on a semi-annual basis, and therefore each report is identified in the HFFACO by a unique alpha character included with the M-62-01 milestone.

D. M-62-02 – Submittal of Hanford Tank Waste Alternatives Report
Milestone Date: March 1, 2000
Description: DOE will submit a report that describes the alternatives (technical, financial, and contractual) to treat Hanford tank waste. The report will: 1.) Identify and describe credible alternatives to the current privatization approach that meet DOE commitments to achieve hot operations by December 2007, and to treat no less than 10 percent of the tank waste by mass and 25 percent of the tank waste by activity by February 2018, 2.) Serve as a basis to amend the FY 2001 budget request for authority to implement a contingency option (authority to use privatization set-aside funds), and 3.) Be released concurrently to Ecology, EPA, and the public.
Status: Completed.

E. M-62-03 – Submit DOE petition for RCRA delisting of vitrified HLW
Milestone Date: December 31, 2006
Description: DOE will submit its petition for delisting of the immobilized HLW from the ~~Phase I~~ WTP from RCRA and the Washington State Hazardous Waste Management Act (delisting petition) in accordance with 40 CFR 260.22 and Washington Administrative Code 173-303-072.
Status: On Schedule

F. M-62-04T – Readiness to Proceed – Support to Phase I Treatment
Milestone Date: May 1, 2000
Description: DOE and its Hanford tank farms operations contractor will complete all necessary work and achieve readiness to proceed in support of Phase I.
Status: Completed

G. M-62-06 – Start of Construction – Phase I Treatment Complex
Milestone Date: December 31, 2002
Description: First placement of structural concrete at one of the treatment complex principal facilities (i.e., pretreatment, low-activity waste vitrification, or HLW vitrification facilities).
Status: Completed on July 10, 2002.

H. M-62-07A – Initial Erection of LAW Structural Steel in the Vitrification Facility.
Milestone Date: October 30, 2003
Description: This milestone represents the placement of the first structural steel column as part of initiation of BNI Baseline Schedule activity 4DL131B000 –"LAW – Elev –21 SS Columns, Beams & Q-Deck at +3," (Contract No. DE-AC27-01RV14136). In addition, activity 4DL121B100 "LAW – Elev –21 Place Basemat Concrete," shall be substantially completed and activities 4DL121D000 "LAW – Elev –21 Perimeter Walls FREP," and 4DL121F000 "LAW – Elev –21 Interior Walls FREP," shall have been initiated.

Completion of this milestone will be met when the first structural steel column is installed at the -21 foot elevation in the LAW facility. This milestone demonstrates a significant progress in design and engineering as well as construction of the LAW facility because basemat concrete will have been poured and construction of walls will have been started. In addition, procurements will have been made, not only for this facility, but for the other major facilities. Erection of structural

steel in the LAW facility will also provide a lessons learned opportunity because it will be the first facility to begin this aspect of construction.
Status: Ahead of schedule; anticipated completion date of late July 2003.

I. **M-62-07B – Complete Assembly of LAW Melter #1.**
Milestone Date: December 31, 2007
Description: This milestone represents 1) the assembly of LAW Melter #1 to the point it is ready for Refractory as part of BNI Baseline activities 3EL3212A00 "Specifications and Analysis," 4DL321A000 "LAW – Procure Material & Equipment for Melters," and 4DL321A200 "LAW-Assemble Melter #1," (Contract No. DE-AC27-01RV14136). In addition, activities 4DL121U100 "LAW – Elev +3 South Melter FREP," and 4DL131D000 "LAW – Elev +28 Columns, Beams & Q-Decking at +48," shall be substantially completed, 2) moving the first HLW melter into the HLW facility as defined in BNI baseline activities ID 4DH46102A2.

Completion of this milestone will be met when 1) LAW melter #1 will have been fully fabricated, assembled and ready for refractory material to be installed. Assembly of the melter is scheduled to occur near the end of LAW construction when the facility is most ready to have the assembled melter moved into the LAW cell where the refractory material will be installed. Meeting this milestone therefore represents significant accomplishment of the engineering, design and construction of the LAW facility~~. Furthermore, assembly of the first melter provides significant opportunity for lessons learned that can be applied in the assembly of the other two LAW melters as well as the HLW melter~~ , and 2) HLW melter #1 has been fully fabricated and moved into the HLW vitrification facility.
Status: On Schedule.

J. **M-62-08 – Submittal of Hanford Tank Waste Supplemental ~~Phase II~~ Treatment ~~Alternatives~~ Technologies Report, Draft Hanford Tank Waste Treatment Baseline, and Draft Negotiations Agreement in Principle (AIP).**
Milestone Date: January 30, 2005
Description: DOE will submit a ~~preliminary~~ supplemental treatment technologies report that describes the technical, financial, and contractual alternatives which in combination with the WTP and any required additional LAW vitrification facilities, are needed to treat all of Hanford's tank wastes~~ the tank wastes remaining after completion of phase I treatment~~. The report will identify and describe viable path(s) forward ~~credible alternatives~~ to complete treatment of ~~remaining~~ all tank wastes by December 31, 2028~~, and aid in budget planning for future budget authority submittal~~. The report shall apply the same selection criteria to all options and include the 2nd LAW vitrification facility as an option. The report will include: the results of all waste form performance data (compared against the performance of borosilicate glass) for all the treatment technologies being considered; performance data will be adequate to make decisions as to the acceptability of any proposed waste form for the waste being considered, and description of the considered treatment technologies (including size, throughput, technical viability, and life cycle cost estimates)~~. The report will be updated every two years until the tank waste treatment phase ii plan in finalized.~~

This report will also include a discussion of waste treatment plant throughput commitments and the realistic potential for enhancing the throughput of currently planned melters, proposed additional melters and potential second generation melters installed at first melter change out.

The draft baseline will contain DOE's proposed approach for treating all Hanford tank wastes (HLW, LAW, and Transuranic [TRU]) by December 31, 2028 including life cycle cost estimates that indicate projected funding requirements through completion of the RPP mission, a schedule

for construction and operation of proposed new facilities and/or enhancements to the WTP, and projected throughput for each facility.

The report and baseline will be accompanied by a draft negotiations AIP and draft agreement change request containing milestones and associated agreement requirements sufficient to effectively drive all required work, including but not limited to: 1) the establishment of requirements regarding any necessary WTP modification(s), 2) the establishment of requirements scheduling the acquisition and operation of any approved treatment technology systems, 3) the establishment of production metrics for treatment complex (WTP plus any supplemental treatment system or second LAW vitrification facility) consistent with completion of treatment by December 31, 2028, 4) the establishment of requirements scheduling acquisition and operation of feed delivery systems for any approved supplemental technology (M-47 milestones). The AIP will be finalized within 30 days of submittal and provide that negotiations will be completed within one hundred and eighty (180) days of AIP finalization, and will provide that, in the event the parties do not reach agreement within this timeframe, the negotiations will be resolved as a resolution of a dispute via final determination of the Director of Ecology pursuant to HFFACO Article VIII. Unless otherwise agreed by the parties, this final determination will be issued within seven months of AIP finalization.
Status: On schedule

K. **M-62-09 – Start ~~Hot~~ Cold Commissioning – ~~Phase 1~~ Waste Treatment ~~Complex~~ Plant**
Milestone Date: February 28, 2009
Description: DOE will start ~~hot~~ cold commissioning of its tank waste treatment ~~complex~~ plant. Start of cold commissioning is defined as introduction of first feed simulant into a process building. ~~(defined as first principal facility receipt of radioactive tank waste for treatment~~).
Status: On Schedule.

L. **M-62-10 – Complete Hot Commissioning - ~~Phase 1~~ Waste Treatment Plant ~~Complex~~**
Milestone Date: January 31, 2011
Description: DOE will achieve sustained throughput of pretreatment, LAW vitrification, and HLW vitrification processes and demonstrate~~d~~ WTP treatment complex availability to complete treatment of no less than 10 percent of the tank waste by mass and 25 percent of the tank waste by activity by December 2018.
Status: On Schedule

M. **M-62-11 – ~~Submittal of Hanford Tank Waste Treatment Phase II Plan~~ Submit A Final Hanford Tank Waste Treatment Baseline**
Milestone Date: January 30, 2006 (See M-62-10)
Description: ~~DOE will submit to Ecology a detailed plan and proposal for the processing of the remainder of DOE's law and HLW wastes (Phase II wastes). This plan and proposal will be accompanied by a draft negotiations Agreement in Principle (AIP), and draft agreement change request containing sufficient enforceable milestones and associated agreement requirements to effectively drive Phase II work to completion in accordance with agreement requirements. Phase II agreement negotiations will be completed within six (6) months of AIP finalization.~~

Following the completion of negotiations required in M-62-08, DOE will modify its draft baseline as required and submit its revised, agreed-to, baseline for treating all Hanford tank waste (HLW, LAW, and TRU) by December 31, 2028.
Status: On Schedule

~~N.~~ **M-62-12 ~~—Issuance of DOE Authorization to Proceed – Phase II Treatment~~**
Milestone Date: Deleted
Description: ~~DOE will authorize the contract phase to design, construct, commission, and provide services for Hanford tank waste pretreatment, low-activity waste vitrification, and high-level waste vitrification all remaining Hanford tank waste, consistent with completion of treatment by December 2028.~~

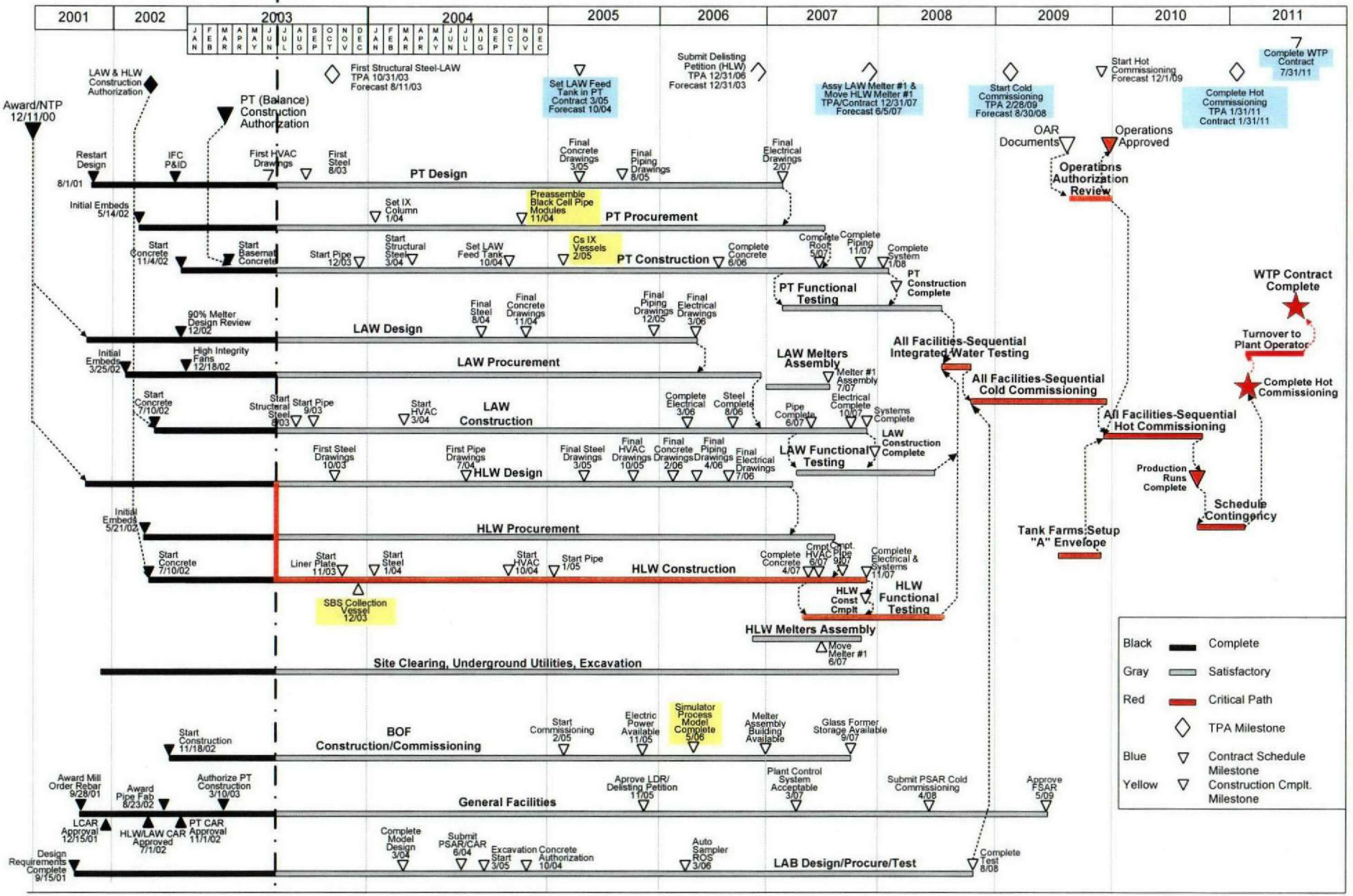
9. WTP PROJECT SCHEDULES

A. Overview Schedule

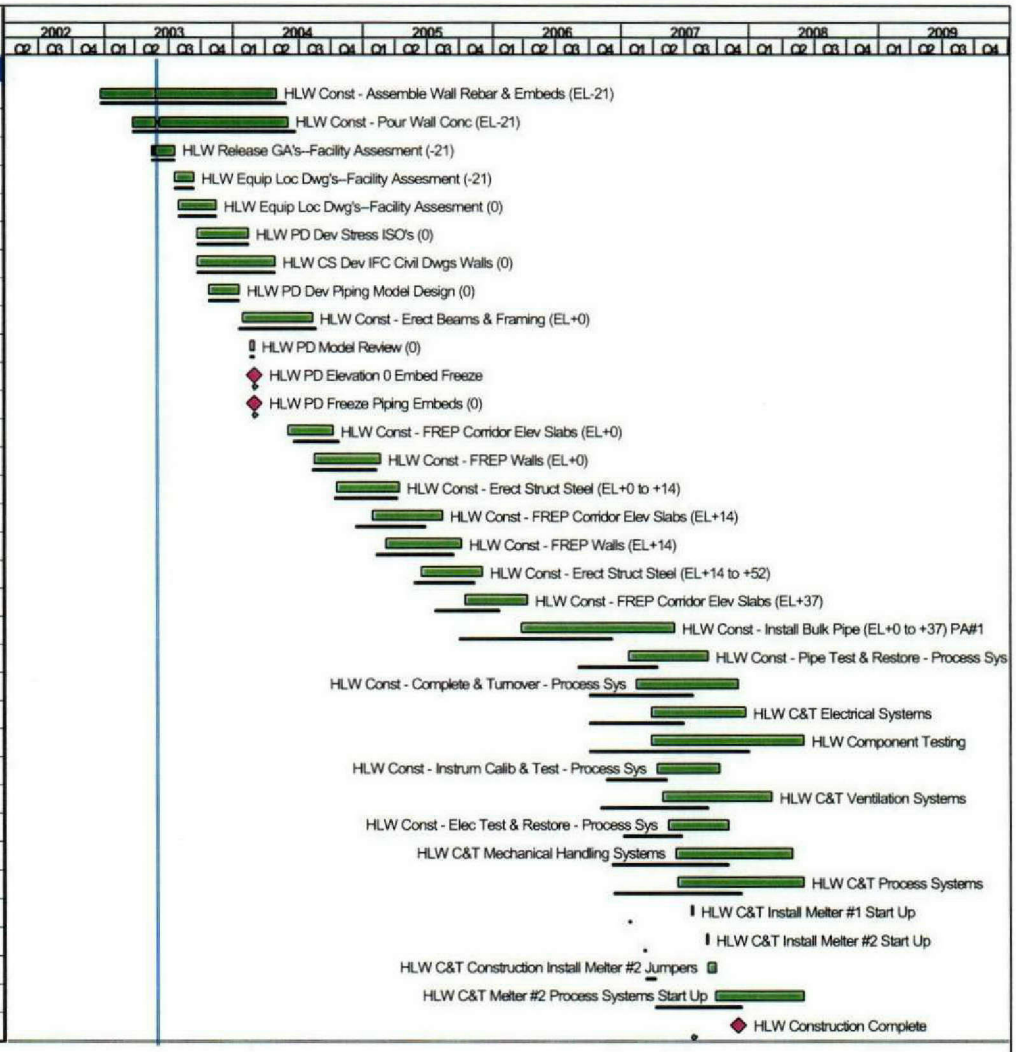
B. Project Critical Path Schedules

WTP Project Overview

June 2003



Activity ID	Rem Dur	Early Start	Early Finish
HLW Critical Path			
4DH1215000	191	23DEC02A	04MAY04
4DH12150	201	24MAR03A	02JUN04
3EH1010A00	35	19MAY03A	15JUL03
3EH1010C00	38	16JUL03	08SEP03
3EH1011C00	78	29JUL03	14NOV03
3EH1511F00	100	22SEP03	13FEB04
3EH1211C00	150	22SEP03	26APR04
3EH1011D05	60	20OCT03	16JAN04
4DH13150	113	26JAN04	12AUG04
3EH1011G00	5	17FEB04	23FEB04
3EH1011G10	0		01MAR04
3EH1011G15	0		01MAR04
4DH12130Z	72	03JUN04	11OCT04
4DH12160	100	17AUG04	14FEB05
4DH13160	96	20OCT04	12APR05
4DH12173	110	25JAN05	09AUG05
4DH12200	120	07MAR05	05OCT05
4DH13170	94	16JUN05	01DEC05
4DH12201	100	12OCT05	11APR06
4DH15340	240	22MAR06	29MAY07
4DH15PRO	125	24JAN07	05SEP07
4DH56PRO	160	15FEB07	28NOV07
5HHC22TCC0	184	30MAR07*	19DEC07
5HS-H010	296*	30MAR07	30MAY08
4DH17PRO	96	16APR07	03OCT07
5HHC22TCK0	209	02MAY07	29FEB08
4DH16PRO	96	14MAY07	31OCT07
5HHC22TCE0	228	04JUN07	28APR08
5HHC22TCH0	247	08JUN07	30MAY08
5HHC2A0125	5	17JUL07	23JUL07
5HHC2A0140	5	28AUG07	04SEP07
5HHC2A0145	16	05SEP07	26SEP07
5HHC2A0147	170	27SEP07	30MAY08
4DH000A999	0		28NOV07



Start Date	11DEC00	Baseline Early Start Schedule	SL3A	Sheet 1 of 1
Finish Date	31JUL11	Current Early Start Schedule	WTP	Month end Facilities Critical Paths
Data Date	26MAY03	Progress Bar	Critical Path Evaluation	Month end Facilities Critical Paths
Run Date	16JUL03 15:56	Critical Activity	HLW Facility	

Activity ID	Rem Dur	Early Start	Early Finish
Pretreatment Critical Path			
3EP10M0428	197	23DEC02A	08MAR04
3EP15I0428	166	19DEC03	16AUG04
4DP155104A	167	16AUG04	13JUN05
4DP30014	124	08NOV04	20JUN05
4DP12563	80	24JAN05	14JUN05
4DP1316D	34	02FEB05	04APR05
4DP12563AA	85	22MAR05	18AUG05
4DP1256D	40	05APR05	14JUN05
4DP13154	80	16JUN05	07NOV05
4DP12270	80	18JUL05	06DEC05
4DP12270AA	85	27SEP05	28FEB06
4DP13155	80	21NOV05	13APR06
4DP12645	100	21DEC05	20JUN06
4DP13156	80	28MAR06	16AUG06
4DP27500	160	09MAY06	22FEB07
4DP16260	160	07JUN06	22MAR07
4DP27600	144	22JUN06	12MAR07
4DP16160	167	06JUL06	02MAY07
4DP16270	144	24JUL06	09APR07
4DP16170	160	21AUG06	05JUN07
4DP164800	192	19SEP06	29AUG07
4DP16340	166	02OCT06	26JUL07
4DP15602	192	25OCT06	08OCT07
4DP16350	144	14NOV06	01AUG07
4DP5611E	128	12FEB07	27SEP07
4DP5651J	96	10APR07	27SEP07
4DP5661A	96	24APR07	11OCT07
4DP5671D	96	16MAY07	05NOV07
4DP5691G	96	31MAY07	19NOV07
4DP5621P	96	14JUN07	04DEC07
4DP5641V	96	28JUN07	18DEC07
4DP5681H	96	16JUL07	03JAN08
4DP5631R	96	30JUL07	17JAN08
4DP56C1X	96	13AUG07	31JAN08
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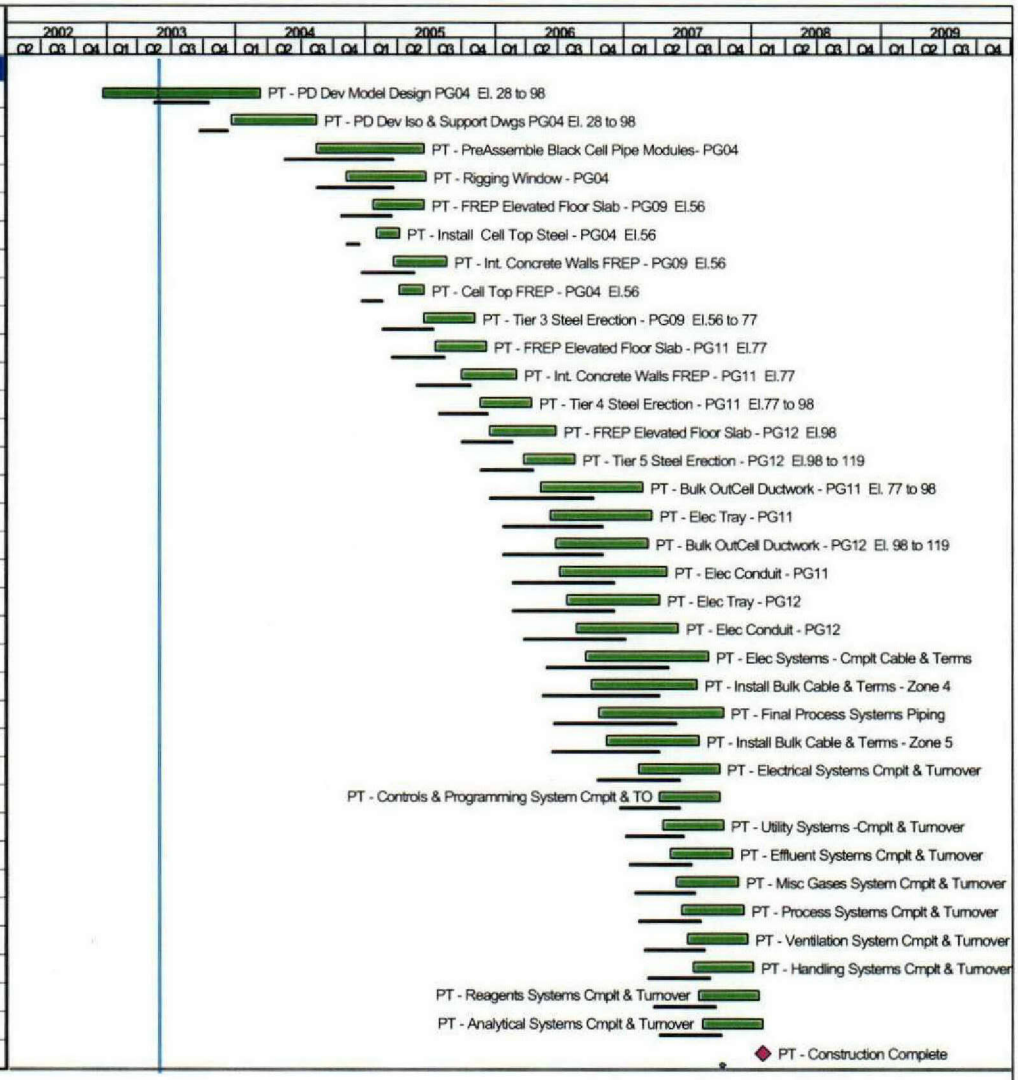

Start Date	11DEC00
Finish Date	31JUL11
Data Date	26MAY03
Run Date	16JUL03 15:59

Baseline Early Start Schedule
Current Early Start Schedule
Progress Bar
Critical Activity

SL3A

Sheet 1 of 1

WTP
Critical Path Evaluation
Pretreatment Facility

Monthend Facilities Critical Paths
Monthend Facilities Critical Paths

Activity ID	Rem Dur	Early Start	Early Finish
LAW Critical Path			
3EL12CS030	71	13JAN03A	04SEP03
4DL121F000	68	24FEB03A	24SEP03
4DL131B000	60	11AUG03	24NOV03
4DL121I000	62	25NOV03*	17MAR04
4DL121K000	80	18MAR04	09AUG04
4DL131C000	72	10AUG04	15DEC04
4DL121N000	52	16DEC04	22MAR05
4DL121O000	36	23MAR05	24MAY05
4DL000A300	0		24MAY05*
4DL131D000	82	25MAY05	19OCT05
4DL121Q000	48	20OCT05	17JAN06
4DL131E000	38	18JAN06	27MAR06
4DL131F000	40	28MAR06	06JUN06
4DL271B300	228	11MAY06	27JUN07
4DL271B310	40	25JUL06	03OCT06
4DL151D400	112	25JUL06	12FEB07
4DL162D000	120	29AUG06	03APR07
4DL151D300	35	04OCT06	05DEC06
4DL163A700	140	08NOV06	19JUL07
4DL162D200	28	06DEC06	25JAN07
4DL162D100	20	29JAN07	05MAR07
4DL164A300	120	28FEB07	01OCT07
4DL164A800	120	28FEB07	01OCT07
5HLC22TCC0	301	23MAR07*	30MAY08
4DL161A300	80	04APR07	23AUG07
4DL561A700	120	04APR07	05NOV07
4DL561A800	120	04APR07	05NOV07
4DL164A200	80	09MAY07	01OCT07
4DL164A700	60	14JUN07	01OCT07
4DL561A200	80	14JUN07	05NOV07
4DL561A300	80	14JUN07	05NOV07
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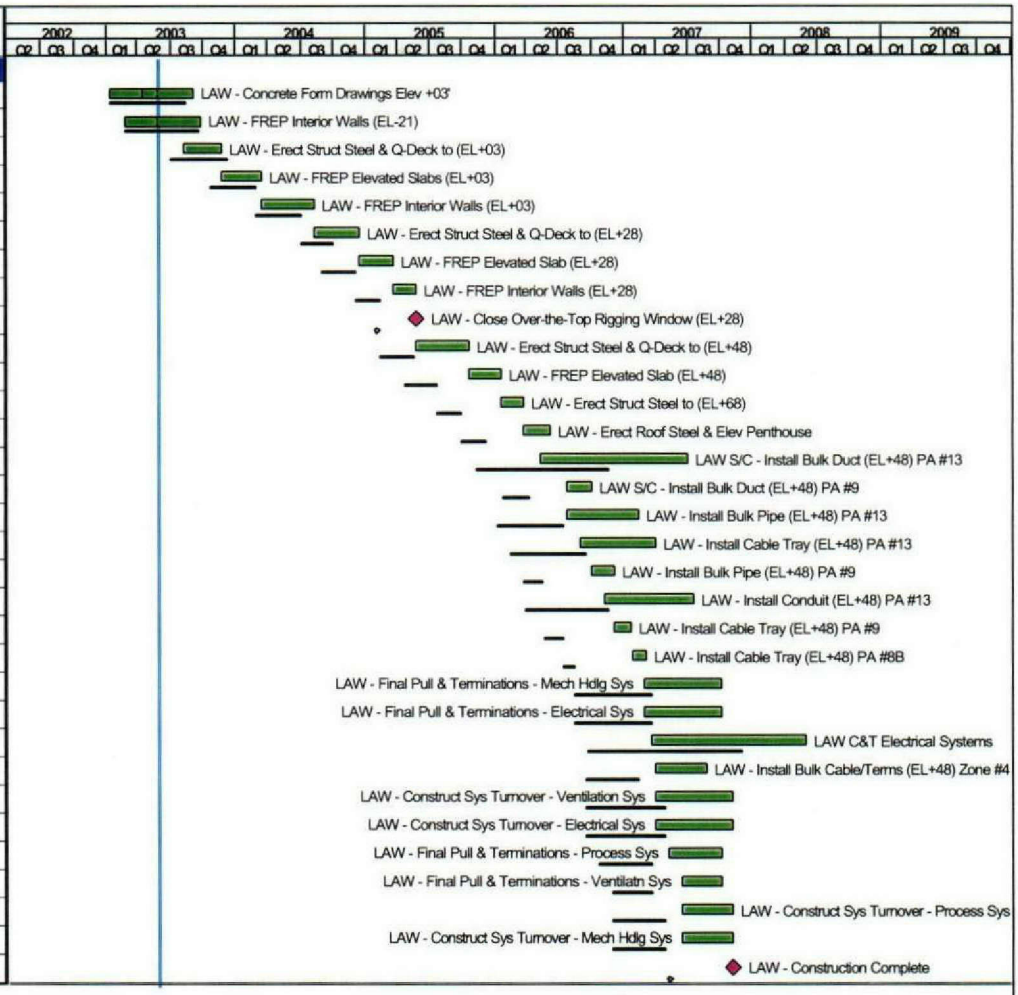

Start Date	11DEC00	Baseline Early Start Schedule	SL3A	Sheet 1 of 1
Finish Date	31JUL11	Current Early Start Schedule	WTP	Monthend Facilities Critical Paths
Data Date	26MAY03	Progress Bar	Critical Path Evaluation	Monthend Facilities Critical Paths
Run Date	16JUL03 15:58	Critical Activity	LAW Facility	